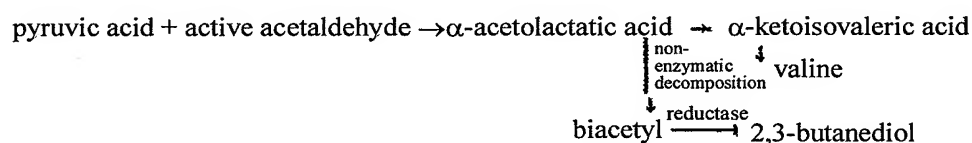


Partial English Translation

Biacetyl is an important by-product of beer fermentation process, and is also one of the key indicators that measure the quality of beer. If the control is made improperly during the brewing process, the biacetyl content will exceed its threshold, making the beer smell unpleasantly like "spoiled rice", and as a result, the taste of beer could be changed. The formation of biacetyl and its control measures will be studied hereinafter from several aspects such as wort production process, fermentation process and process after pasteurization.

1. The influence of wort quality on biacetyl

The diagram below shows the formation of biacetyl:



Valine could suppress the formation of biacetyl by inhibiting the formation of α -acetolactatic acid, while valine constitutes an important part of α -amino nitrogen pool. Thus, the α -amino nitrogen content could directly affect the amount of biacetyl formation.

Following is a curve diagram showing the relation between biacetyl and α -amino nitrogen, derived from the data obtained under the same process conditions, with the same bacterial species and the same additive amount of yeast (see FIG. 1).

As is seen from the curve, when α -amino nitrogen < 180 mg/L, the biacetyl content changes significantly with the α -amino nitrogen content, indicating a deficiency of the α -amino nitrogen content; when α -amino nitrogen > 200 mg/L, the biacetyl

content remains almost the same value, which indicates an excess of α -amino nitrogen content; when α -amino nitrogen ranges from 180 mg/L to 200 mg/L, the change of biacetyl content with α -amino nitrogen content tends to be gentle. Therefore, as for the control of biacetyl, it should be most appropriate to maintain the α -amino nitrogen content in wort to be within the range of 180 mg/L to 200 mg/L.

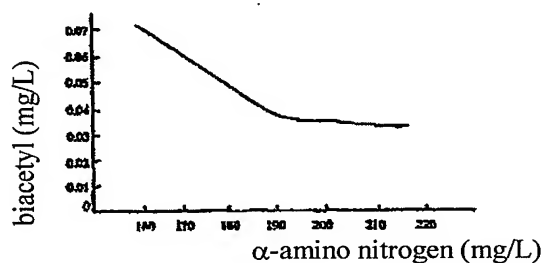


FIG. 1 Curve Diagram showing the Relation between Biacetyl and α -amino Nitrogen